

In the Claims:

Kindly rewrite the claims as follows:

1. (Currently amended) A method of measuring the QT interval of an electrocardiogram (ECG) signal wherein the end of the T wave is identified from ECG data, the end of the T wave being determined by reference to the timing of at least one intersection at which an upright T wave of a first set of derived ECG signal data intersects an inverted T wave of a second set of derived ECG signal data, the two sets of ECG data being superimposed so as to maximize their data fit over a segment of the ECG signal after a peak of the positive T wave peak.
2. (Currently amended) A method as claimed in claim 1 wherein the data fit of said data is maximised by a least squares calculation.
3. (Currently amended) A method as claimed in claim 1 or 2, wherein the method comprises the steps of:
 - (a) acquiring ECG signal data;
 - (b) deriving a first set of reduced noise ECG signal data from the acquired ECG signal data;
 - (c) inverting the first reduced noise set of reduced noise ECG signal data to derive an inverted set of reduced noise ECG signal data;
 - (d) identifying a portion of each set of ECG signal data corresponding to a said segment after the T wave;
 - (e) calculating an offset such as to fit the first set of data to the inverted set of data over said segment;
 - (f) detecting at least one intersection between the first set of data and the inverted set of data by reference to said offset; and
 - (g) determining the end of said QT intervals-interval by reference to the timing of the detected intersection(s).

4. (Currently amended) AThe method as claimed in ~~claims~~claim 3 wherein in step (g) the end of the QT interval is determined by ~~the~~a first point intersection.

5. (Currently amended) AThe method as claimed in ~~any previous claim~~4 wherein the end of the T wave is defined at the first point of intersection in said segment, provided there is at least one other point of intersection after a predetermined interval.

6. (Currently amended) AThe method as claimed in ~~any previous claim~~1 wherein said interval can be varied according to ~~the~~ noise content in ~~the~~a segment of ~~the~~an ECG deemed to be ~~the~~an isoelectric line baseline segment.

7. (Currently amended) AThe method as claimed in ~~any of claims~~claim 3 to 6 wherein the step (b) comprises calculating ~~the~~a median signal for each time from an ensemble of ECG signals for each lead to reduce low frequency baseline noise.

8. (Currently amended) AThe method as claimed in ~~any of claims~~3 to claim 7 wherein the ~~method step~~(b) further comprises smoothing the median ~~enssembled~~ ECG signal with a moving median filter to reduce high frequency noise.

9. (Currently amended) AThe method as claimed in ~~any of claims~~3 to claim 8 wherein the ~~method step~~(b) further comprises filtering the ~~median smoothed~~, median ~~enssembled~~ ECG ~~signal~~ using a wavelet frequency thresholding technique which subtracts ~~the~~ magnitudes of any non-zero frequency components within the isoelectric baseline ~~segment~~segment from ~~the~~ rest of the ECG thus further de-noising it.

10. (Currently amended) AThe method as claimed in ~~any of claims~~3 to claim 9 wherein the step (b) further includes vertically shifting the smoothed median ~~enssembled~~ ECG signal so that ~~the~~a minimum value after peak of T is zero.

11. (Currently amended) A-The method as claimed in ~~any of claims 3 to claim~~ 10 wherein the step (b) further comprises ~~the steps of~~ detecting and correcting baseline drift in the first set of ECG data.

12. (Currently amended) A-The method as claimed in ~~any preceding claim~~ 11 wherein the detecting step includes ~~the~~ testing for the presence of a single crossing of one isoelectric line.

13. (Currently amended) A-The method as claimed in ~~any preceding claim~~ 12 wherein ~~the~~ an ensembled ECG can be is rotated about a zero point or otherwise transformed to reconfigure the set of ECG data to have multiple crossings of said line.

14. (Currently amended) A-The method as claimed in ~~any of claims claim~~ 3 to 13 wherein the step (b) further includes applying a non-linear function such as squaring ~~the~~ amplitudes of the signal for all time instants, in order to accentuate features of interest and ensure positive deflections of the T wave.

15. (Currently amended) A-The method as claimed in ~~any of claims 3 to claim~~ 14 wherein the step (b) further includes summing ~~the~~ squared amplitudes of ensembled orthogonal leads over all time instants to give a squared resultant vector ensembled ECG.

16. (Currently amended) A-The method as claimed in ~~any preceding claim~~ 1 wherein the method further includes finding ~~the~~ a beginning of the QT interval by an established method, ~~for example from the median of ensembled ECG signals from all 12 leads~~.

17. (Currently amended) A-The method as claimed in ~~any preceding claim~~ 16 wherein the method includes calculating the QT interval by subtracting the beginning of the QT interval from the ~~calculated~~ end of the T wave.

18. (Currently amended) A-The method as claimed in ~~any preceding claim~~ 1 wherein the QT interval is measured for ~~the~~ squared vector resultant data derived from quasi-orthogonal or actual orthogonal XYZ leads, and ~~the~~ a longest of QT measurements made in 3 dimensions is made.

19. (Currently amended) ~~A~~The method as claimed in ~~any preceding claim 3~~ wherein the ECG signal data ~~may be~~is acquired in step (a) from ~~the~~a set of standard ECG leads including I, aVf and V2.

20. (Currently amended) An apparatus for measuring the QT interval of an electrocardiogram (ECG) signal ~~wherein there is provided~~comprising means for identifying ~~the~~an end of ~~the~~a T wave from ECG data, the end of the T wave being defined as ~~the~~a first time of intersection at which an upright T wave of a first set of derived ECG signal data intersects an inverted T wave of a second set of derived ECG signal data, the two sets of data being superimposed so as to maximise ~~their~~data fit over a segment of the ECG signal after ~~a peak of~~ the positive T wave ~~peak~~.

21. (Currently amended) ~~An~~The apparatus as claimed in claim 20 wherein the data fit of said ~~data~~ is maximised by a least squares calculation.

22. (Currently amended) ~~An~~The apparatus as claimed in claim 20 or 21 wherein the apparatus comprises:

means for acquiring ECG signal data;

means for deriving a first set of reduced noise ECG signal data from the acquired ECG signal data;

means for inverting the first ~~set of~~ reduced noise ~~set of~~ ECG signal data to derive an inverted set of reduced noise ECG signal data;

means for identifying a portion of each set of ECG signal data corresponding to ~~a~~the segment ~~after the T wave~~;

means for calculating an offset such as to fit the first set of data to the inverted set of data over said segment;

means for detecting at least one intersection between the first ~~set~~ and the inverted set of data by reference to said offset; and

means for determining ~~the~~an end of said QT ~~intervals~~interval by reference to ~~the~~ timing of the detected intersection(s).

23. (Currently amended) ~~An~~The apparatus as claimed in claim 22 wherein in the means for determining the end of said QT interval, the QT interval is determined by ~~the~~a first point of intersection.

24. (Currently amended) ~~An~~The apparatus as claimed in ~~claims 22 or claim~~ 23 wherein the end of the T wave is defined at the first point of intersection in said segment, provided there is at least one other point of intersection after a predetermined interval.

25. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~ claim 22 to 24 wherein said interval ~~can be~~is varied according to ~~the~~a noise content in ~~the~~a segment of ~~the~~an ECG deemed to be the isoelectric line baseline segment.

26. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~ claim 22 to 24 wherein the means for deriving a first set of reduced noise ECG signal data comprises means for calculating ~~the~~a median signal for each time from an ensemble of ECG signals for each lead to reduce low frequency baseline noise.

27. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~ 22 to claim 26 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for smoothing the median ~~ensembled~~ ECG signal with a moving median filter to reduce high frequency noise.

28. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~ 22 to claim 27 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for filtering the ~~median smoothed, median~~ ensembled signal ECG using a wavelet frequency thresholding technique which subtracts ~~the~~ magnitudes of any non-zero frequency components within the isoelectric baseline segment from ~~the~~a rest of the ECG thus further de-noising it.

29. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims 22 to 28~~claim 27 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for vertically shifting the smoothed median ~~ensembled~~ ECG signal so that ~~the~~a minimum value after peak of T is zero.

30. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 22 to 29 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for detecting and correcting baseline drift in the first set of ECG data.

31. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims 20 to~~claim 30 wherein ~~detection~~the means for detecting includes means for ~~the~~ testing for ~~the~~ presence of a single crossing of one isoelectric line.

32. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims 20 to~~claim 31 ~~wherein there is provide~~further comprising means for rotating ~~the~~an ensembled ECG about a zero point or otherwise ~~transformed~~transforming the ensembled ECG to reconfigure the set of ECG data to have multiple crossings of said line.

33. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 22 to 32 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for applying a non-linear function such as squaring ~~the~~ amplitudes of the signal for all time instants, in order to accentuate features of interest and ensure positive deflections of the T wave.

34. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 22 to 33 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for summing ~~the~~ squared amplitudes of ensembled orthogonal leads over all time instants to give a squared resultant vector ensembled ECG.

35. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 20 to 34 wherein the apparatus further includes means for finding ~~the~~a beginning of the QT interval by an established method, ~~for example from the median of ensembled ECG signals from all 12 leads.~~

36. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 20 to ~~claim~~35 wherein the apparatus includes means for calculating the QT interval by subtracting the beginning of the QT interval from the ~~calculated~~ end of the T wave.

37. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 20 to 36 wherein the QT interval is measured for ~~the~~-squared vector resultant data derived from quasi-orthogonal or actual orthogonal XYZ leads, and ~~the~~a longest of QT measurements made in 3 dimensions is made.

38. (Currently amended) ~~An~~The apparatus as claimed in ~~any of claims~~claim 20 to 35 wherein the ECG signal data is acquired from ~~the~~a set of standard ECG leads including I, aVF and V2.

39. (Currently amended) A record carrier ~~wherein are comprising~~ recorded program instructions for causing a programmable processor to perform the steps of the method as claimed in ~~claims~~claim 1 to 19, or to implement an apparatus having ~~the features claimed in any of claims~~20 to 38.

40. (New) A record carrier comprising recorded program instructions for causing a programmable processor to implement an apparatus having the features claimed in claim 20.